

Listing of Claims:

This listing of claims will replace all prior versions, and listings of claims in the application:

1. (Currently amended) A method of coding image data, comprising:

acquiring a plurality of image frames included in image data;

detecting one or more key frames among the plurality of image frames by

determining image frames having an image difference from an immediately prior

frame that exceeds a predetermined threshold;

separating the image frames included in ~~image data~~ into [[a]] key frame frames and [[an]] intermediate frame frames;

computing a matching between the key frames thus separated;

generating a virtual intermediate frame based on the matching; and

encoding an actual intermediate frame included in the image data based on the virtual intermediate frame.

2. (Currently amended) A method as recited in Claim 1, wherein said computing ~~process includes~~ comprises computing the matching, in a per-pixel manner, between the key frames, and said generating ~~process includes~~ comprises performing an interpolation computation per pixel based on correspondence of a pixel position and intensity between the key frames so as to generate the virtual intermediate frame.

3. (Currently amended) A method as recited in Claim 1, wherein said encoding process ~~includes~~ comprises encoding a difference of the virtual intermediate frame and the actual intermediate frame.

4. (Currently amended) A method as recited in Claim 1, further ~~including~~ comprises outputting, as encoded data for the image data, a combination of key frame data and data obtained in said encoding process.

5. (Currently amended) A recording medium which stores a program executable by a computer, the program comprising the functions of:

acquiring a plurality of image frames included in image data;

detecting one or more key frames among the plurality of image frames by determining image frames having an image difference from an immediately prior frame that exceeds a predetermined threshold;

separating the image frames included in image data into [[a]] key frame frames and [[an]] intermediate frame frames;

computing a matching between the key frames thus separated;

generating a virtual intermediate frame based on the matching; and

encoding an actual intermediate frame included in the image data based on the virtual intermediate frame.

6. (Currently amended) An image data coding apparatus, comprising:

a unit which acquires image data including a plurality of frames;

a unit which detects one or more key frames among the plurality of image frames by determining image frames having an image difference from an immediately prior frame that exceeds a predetermined threshold;

a unit which separates the frames ~~included in the image data~~ into ~~[[a]]~~ key frame frames and ~~[[an]]~~ intermediate frame frames;

a unit which inputs the key frames thus separated and computes a matching between the inputted key frames;

a unit which generates a virtual intermediate frame based on the matching computed; and

a unit which encodes an actual intermediate frame thus separated, based on the virtual intermediate frame.

7. (Canceled)

8. (Currently amended) An image data coding apparatus as recited in Claim 6 ~~[[7]]~~, wherein said key frame detecting unit selects an image frame at constant intervals.

9. (Original) An image data coding apparatus as recited in Claim 6, wherein said encoding unit encodes a difference between the virtual intermediate frame and the actual intermediate frame.

10. (Original) An image data coding apparatus as recited in Claim 6, wherein said matching computing unit performs a per-pixel matching between the key frames.

11. (Currently amended) An image data coding apparatus as recited in Claim 10, wherein said generating unit interpolates in-between pixels of the key frames based on the per-pixel matching, so as to generate the virtual intermediate frame.

12. (Currently amended) An image data coding apparatus as recited in Claim 10, wherein said generating unit interpolates in-between blocks of the key frames based on the per-block matching, so as to generate the virtual intermediate frame, the block being composed of a plurality of pixels.

13. (Original) An image data coding apparatus as recited in Claim 6, wherein said generating unit performs an interpolation calculation per pixel based on correspondence of position and intensity of a pixel between the key frames, so as to generate the virtual intermediate frame.

14. (Original) An image data coding apparatus as recited in Claim 6, wherein said generating unit performs an interpolation calculation per block based on correspondence of position and intensity of a block between the key frames, so as to generate the virtual intermediate frame, the block being composed of a plurality of pixels.

15. (Original) An image data coding apparatus as recited in Claim 6, further comprising a unit which combines data of the key frame and outputted data of said encoding unit, and which outputs the combined data as encoded data for the image data.

16. (Currently amended) An image data coding apparatus as recited in Claim 6, further comprising a unit which ~~provides~~ selects an image frame as a key frame ~~anew~~ in the vicinity of a ~~certain~~ particular intermediate frame or an interval between two key frames when an error relating to the ~~certain~~ particular intermediate frame exceeds an allowable value, the error being ~~assumed~~ determined as between encoded image data and original image data.

17. (Currently amended) A method of decoding image data, comprising:
acquiring encoded image data that has been encoded according to the method of claim 1 and comprising key frames and supplementary data;
~~separating key frames of the image data included in encoded data of the image data;~~ from other supplementary data;
generating a virtual intermediate frame based on computing a matching between the key frames thus separated; and
decoding an actual intermediate frame based on the virtual intermediate frame and the supplementary data.

18. (Currently amended) A method as recited in Claim 17, wherein the supplementary data ~~include~~ comprise data generated based on a difference between the actual intermediate frame and the virtual intermediate frame.

19. (Original) A method as recited in Claim 18, wherein said decoding process is such that the actual intermediate frame is decoded by adding decoded data of data generated based on the virtual intermediate frame and the difference.

20. (Original) A method as recited in Claim 17, further comprising outputting as decoded data of the image data a combination of data of the key frame and data of the actual intermediate frame.

21. (Currently amended) A recording medium which stores a program executable by a computer, the program comprising the functions of:

acquiring encoded image data that has been encoded according to the method of claim 1 and comprising key frames and supplementary data;

~~separating key frames of the image data included in encoded data of the image data;~~ from other supplementary data;

generating a virtual intermediate frame based on computing a matching between the key frames thus separated; and

decoding an actual intermediate frame based on the virtual intermediate frame and the supplementary data.

22. (Currently amended) An image data decoding apparatus, comprising:

a unit which acquires encoded data of image data that has been encoded according to the method of claim 1 and comprising key frames and supplementary data;

a unit which separates key frames ~~of the image data included in the encoded data,~~ from other supplementary data;

a unit which computes a matching between the key frames separated in said separating unit;

a unit which generates a virtual intermediate frame based on the matching computed in said computing unit; and

a unit which decodes an actual intermediate frame based on the virtual intermediate frame and the ~~other~~ supplementary data.

23. (Currently amended) An image data decoding apparatus as recited in Claim 22, wherein the supplementary data ~~include~~ comprise data generated based on a difference between the actual intermediate frame and the virtual intermediate frame.

24. (Original) An image data decoding apparatus as recited in Claim 23, wherein said decoding unit decodes the actual intermediate frame by adding the virtual intermediate frame to the data generated based on the difference.

25. (Original) An image data decoding apparatus as recited in Claim 22, further comprising a unit which outputs as decoded data of the image data a combination of data of the key frame and data of the actual intermediate frame.

26-27. (Canceled)

28. (Currently amended) A method of coding image data, comprising:

acquiring a plurality of image frames included in image data;

detecting one or more key frames among the plurality of image frames by

determining image frames having an image difference from an immediately prior frame

that exceeds a predetermined threshold;

separating the image frames included in image data into [[a]] key frame frames

and [[an]] intermediate frame frames;

processing the key frames by:

generating a series of source hierarchical images of different resolutions
by operating a multiresolutional critical point filter on a first key frame obtained by
said separating process;

generating a series of destination hierarchical images of different
resolutions by operating the multiresolutional critical point filter on [[a]] an
adjacent second key frame obtained by said separating process;

computing a matching of the source hierarchical images and the
destination hierarchical images among a resolutional level hierarchy;

generating a virtual intermediate frame based on the matching computed;
and

encoding an actual intermediate frame included in the image data, based
on the virtual intermediate frame.

29. (Currently amended) An image data coding apparatus, comprising:

a unit which acquires image data including a plurality of frames;

a unit which detects one or more key frames among the plurality of image frames by determining image frames having an image difference from an immediately prior frame that exceeds a predetermined threshold;

a unit which separates the frames ~~included in the image data~~ into ~~[[a]]~~ key frame frames and ~~[[an]]~~ intermediate frame frames;

a unit which inputs the key frames thus separated and computes a matching between the inputted key frames;

a unit which generates a virtual intermediate frame based on the matching computed; and

a unit which encodes an actual intermediate frame thus separated, based on the virtual intermediate frame,

wherein said matching computing unit generates a series of source hierarchical images of different resolutions by operating a multiresolutional critical point filter on a first key frame obtained by said separating unit, generates a series of destination hierarchical images of different resolutions by operating the multiresolutional critical point filter on a second key frame obtained from by said separating unit, and computes a matching of the source hierarchical images and the destination hierarchical images among a resolution level hierarchy.

30. – 33. (Canceled)